A STUDY OF THE PROGRAM FOR MEDICAL EYE CARE IN KANSAS.

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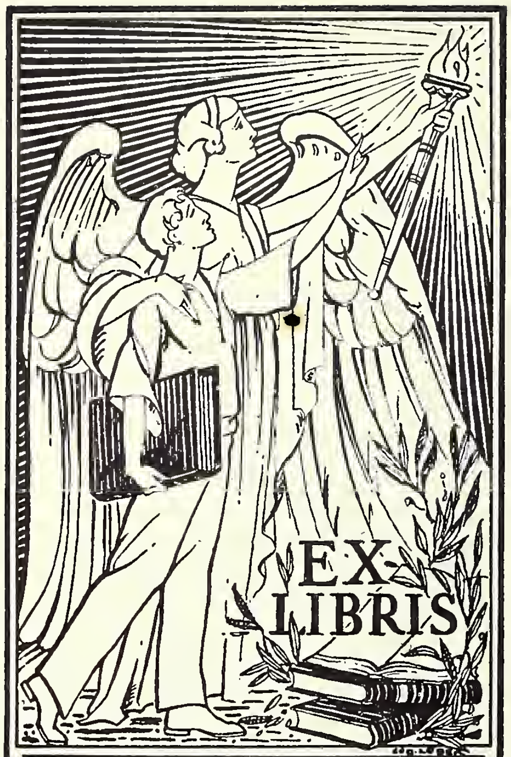

AMERICAN FOUNDATION
FOR THE BLIND INC.

A STUDY OF
THE PROGRAM FOR MEDICAL EYE CARE
IN KANSAS

Division of Services for the Blind
State Department of Social Welfare
Topeka, Kansas

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AMERICAN FOUNDATION
FOR THE BLIND INC.

PROGRAM FOR MEDICAL EYE CARE UNDER
THE DIVISION OF SERVICES FOR THE BLIND
KANSAS STATE DEPARTMENT OF SOCIAL WELFARE

(A study of 4769 reports of ophthalmological examinations made
on persons applying for Aid to the Blind during the period:
August 24, 1937 to April 15, 1943.)

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INTRODUCTION

In order to have a background for presenting the material in this study, it is perhaps well to review briefly the various stages of development through which the present program for medical eye care has come about.

When, in April 1937, the Legislature passed the Kansas Social Welfare Act, there was included in this Act authorization for the establishment of a Division of Services for the Blind whose three-fold program would consist of activity for the Restoration of Sight, Prevention of Blindness and Vocational Rehabilitation of blind persons. The Division, as such, was not created until November 1937 but considerable activity normally falling within its range preceded it and along with it was laid groundwork for the development of the anticipated programs. One of its first activities came simultaneously with the establishment of an Aid to the Blind category under the Division of Public Assistance when there arose the need for a "qualifying" authority which could determine the eligibility of applicants for this type of assistance on the basis of visual acuity.[1] Since this could be determined only by an ophthalmological examination, provision for this service was made. There followed the appointment of a State Supervising Ophthalmologist and a listing of qualified physicians who limited their practice to the eye or eye, ear, nose and throat. The client was given choice of physician, report of eye examination was made according to specific instructions,[2] and sent to the office of the State Supervising Ophthalmologist who made the final decision regarding eligibility to receive Aid to the Blind. The first reports came to the attention of the State Supervising Ophthalmologist early in September 1937. From September 1 to December 31, 1937, a total of 608 reports were reviewed. The group was comprised largely of older persons and the diagnosis of "senile cataract" was made in the majority of instances. A large percentage of these persons ~~was~~ found to have operable conditions with good prospects for restoration of vision. Plans were

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[1] It is understood that the responsibility for determining eligibility, both financial and according to age (16 years and over) was to be assumed by the individual County Welfare Departments.

[2] Mailed to physicians in August 1937.

thereupon completed to provide medical and surgical eye care to individuals, approved for Aid to the Blind, who had eye conditions which were amenable to treatment. In April 1938, instructions on the procedure to be used were mailed to County Welfare Departments and to the ophthalmologists participating in the program. Thus the Restoration of Sight program was "launched". Some time later the service providing eye care was broadened to include persons of any age who, following an eye examination to determine eligibility for Aid to the Blind, were found in need of eye care which would tend to maintain, improve or restore vision. (Approval for eye care on the basis of eligibility for Aid to the Blind thereby became unnecessary.) This ramification brought about the possibility of providing eye care before vision had become so reduced as to place the person in the category of blindness. Another step forward was taken in June 1942 when eye care was made available to any person who was a recipient of public assistance, regardless of category. This made it possible to give attention to persons with eye trouble at a time when their vision was not impaired to a marked degree, and in its truest sense was an effort to prevent blindness as well as to ameliorate conditions which had already caused blindness. The latest development in the program, which went into effect September 1943, makes it possible to embrace a still larger group of persons and the benefits of medical eye care are now extended to any Kansan, regardless of age, provided that he has an eye condition which is in need of treatment and that he is without funds to provide this for himself. This includes the individual whose personal resources do not cover his medical needs as well as the recipient of public assistance.

To look back into the earlier history of the program, it is interesting to note that for a time medical care was not confined to ophthalmological care alone, but that an effort was made to provide other medical attention of which the client was found to be in need. The study reveals that approximately thirty persons received medical care other than eye care. This included: Anti-luetic treatment (including fever therapy), x-ray and radium therapy, brain surgery, diabetic and tuberculin treatment and complete physical examinations to find the foci of infection. During this period refraction and glasses only (other than the provision of glasses following cataract extraction) were given to about 294 persons. Selection of cases to receive this service was restricted to persons with high refractive errors or whose vision, uncorrected, placed them in the category of blindness. At one time while this broader program including general medical care and glasses was in force, a shortage of funds necessitated a brief temporary postponement of surgical eye care. With the widening of the scope of the program, based on evidence for a more widespread need of extending medical and surgical eye care, above services were generally discontinued by the Division. Since the state public assistance program is interested in the complete welfare of the individual and was already making general medical care available to its clients, this need, when evidenced by the ophthalmologist during his examination, was reported to the county welfare department to which client was known. Approximately 1227 persons have thus been called to the attention of the county welfare department and their need for general medical care and/or glasses was explained.

As can be seen by the foregoing review, the policies governing the program of medical eye care have always been flexible and it is possible to adapt the services to the needs which become apparent in the state from time to time.

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ANALYSIS OF PROGRAM FOR MEDICAL EYE CARE

This study is based on information taken from the eye examination reports of 4769 persons who, during the period from September 1, 1937 to April 15, 1943, came to the attention of the Division of Services for the Blind. This particular period was chosen because it includes the first five years of the Division's program for medical eye care.[1]

NUMBER OF REFERRALS BY YEAR

The following number of persons were examined in each of the years included: (These figures exclude re-examinations)

	Year	Number		Percentage	
(from 9-1-37)	1937	608	or	12.9% of total-	(examined during first 4 months of the program.)
	1938	860	or	18.0% of total	
	1939	760	or	15.9% of total	
	1940	1246	or	26.1% of total	
	1941	763	or	16.0% of total	
	1942	454	or	9.5% of total	
to 4-15-1943		78	or	1.6% of total	

SEX AND RACE

Of the 4769 persons included in the study, 56.4% or 2690 are male; 43.3%, or 2069 are female.[2] Ninety per cent (90%) of the entire group, or 4295 persons are of the white race, including some 65 Mexicans. Nine and seven-tenths per cent (9.7%), or 462 persons are Negroes.[3]

AGE AT TIME OF EXAMINATION

As might be expected, there is a very wide range in ages. The youngest person in the files was an eight-day-old infant with ophthalmia neonatorum for whom emergency care was prescribed. The oldest applicant was a "veteran" of 102 years. To get a picture, in respect to age, of the persons in the study, the ages have been grouped as follows:

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1. As indicated in the introduction, although reports of eye examinations reached the State Supervising Ophthalmologist as early as September 1937, the treatment program did not begin until April 15, 1938.
2. Sex of .3% of the group not given on reports.
3. Race of .3% of the group not given on reports.

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Age at time of examination	Number examined	Per cent of total
Birth to 5 yrs.	42	.9%
6 to 16 yrs.	298	6.2%
17 to 25 yrs.	143	3.0%
26 to 45 yrs.	462	9.7%
46 to 65 yrs.	1503	31.5%
66 and over	2315	48.5%

(.2% not reported on forms)

As indicated by the table, 19.8% or less than one-fifth of the persons in the study were under 45 years of age, a period when much eye pathology, if discovered and treated, can have a favorable outlook. (Three hundred forty--340--of this group were children 16 years and younger.) Close to one-third, or 31.5% of the total (ages 46 to 65 yrs.) came to the attention of this Division at a time when eye health must be especially guarded. Many of these, unfortunately, had impaired vision or blindness which could have been prevented by previous timely treatment. The largest number of persons, 48.5%, fell into the age group--sixty-six years and older. Restoration of sight was possible for a number, palliative treatment for others, but for many there was no recommendation. It is interesting to note that twenty-five persons in this age group were ninety years or over.

VISUAL ACUITY

Although with very few exceptions, every eye examination report had been made on persons who were applying for Aid to the Blind, only 2761 or 57.9% were actually eligible for Aid to the Blind on the basis of visual acuity. Two thousand and eight (2008) persons, or 42.1% were ineligible. At first glance one may wonder at the large percentage of persons, who, while applying for Aid to the Blind had vision in excess of the definition of blindness. Experience and observation bring out the following, however:

1. The rulings make it permissible for a person to apply for Aid to the Blind if he believes his sight to be seriously impaired and gives reasonable evidence of no longer being able to pursue his accustomed activities. It is not possible for the client or the case worker to determine blindness accurately, i.e., within the limits of the definition.

2. Counties having a small Aid to the Blind case load and making referrals infrequently, were sometimes using information regarding procedure which had been superseded by later rulings. For example, clients in need of eye care were advised to apply for Aid to the Blind since under an earlier ruling only applicants for this type of assistance were eligible for medical eye care. Occasionally larger counties made the same error. It is possible that the procedure as explained, was not entirely clear.

DIAGNOSES -- Causes of Eye Trouble

Diagnoses were recorded from the reports of the eye examinations. In each case the diagnosis, as given by the examining ophthalmologist and the etiology, if known, were listed. This information was tabulated by counties and later for the state as a whole, first according to the most frequently appearing eye conditions and the remainder under topography, or site of eye disease.

Diagnoses[1]

Cataracts	1555
Refractive Error (only)	590
Optic Atrophy	399
Glaucoma	385
Trachoma	257
Pterygium	236
Strabismus	73
Ophthalmia Neonatorum	21
Congenital Anomalies	47
Neoplasms	10

Topographical Listing (Excluding above)

Lids	60
Tear Duct	17
Cornea	248
Sclera	2
Iris	49
Ciliary Body	3
Retina	271
Macula	14
Choroid	152
Uvea	2[illegible]
Vitreous	3
Optic Disc	2
Optic Nerve (excluding optic atrophy listed above)	12 (411 including optic atrophy)
Optic Tract	1
Brain Lesion	5
Neoplasms	10
Congenital Anomalies	47
Miscellaneous	280

Eye Injuries	332

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[1] See Appendix for detailed classification

Since so much eye disease is directly related to some other condition in the body, an effort was made to record etiology when given, or to note conditions thought by the examining ophthalmologist to be possibly responsible in part or whole for the client's eye trouble. The diseases mentioned are listed in the appendix at the end of the study. Numbers which appear opposite each disease are inaccurate in relation to the study as a whole, because the ophthalmologists were not all consistent in recording the presence of a physical condition other than eye condition. The two most frequently recorded conditions were Syphilis (congenital and acquired) and Diabetes. "Focal infection" as the source of eye trouble appeared third most often. Other more prevalent conditions mentioned include nephritities (kidney conditions) endocrine disturbances (goiter, pituitary gland, etc.) hypertensives, diseases such as meningitis, tuberculosis, measles, scarlet fever, etc., and alcohol and drug poisonings.

The question has sometimes been raised as to the prevalence of Trachoma in Kansas. The extent to which ophthalmologists over the state find the disease in their practice is not accurately known, but in the period studied, 257 persons, or 5% of the total number were diagnosed as having or having had Trachoma. Spotting these cases on a map we note that the majority occurred in the southeastern part of the state and in the three largest cities: Wichita, Kansas City and Topeka. In general, the prevalence of Trachoma seems to be in proportion to the density of population. The same holds true for the distribution of pterygium which is sometimes thought to occur more readily in areas where there is a great deal of dust, etc. Very few cases of pterygium were found in the western area of the state commonly termed as the "dust bowl".

There was a large enough number of eye injuries to give this item a place on the list of causes of blindness, although actually the eye condition caused by the injury is listed under the diagnosis given by the ophthalmologist. During the period studied, 332 persons who applied for Aid to the Blind had been victims of eye injuries at one time or another which had exacted a toll of much useful vision and in many cases was responsible for the loss of sight in both eyes. Fifty-nine (59) of these persons had eye injuries during childhood, (ages one to sixteen years included). The remainder, 273, was adults when injury occurred. These injuries occurred as follows:

Children		Adults	
Home.	26	Farm.	56
School and Play . . .	26	Industry	46
Explosion	3	Home.	36
Hunting.	1	Hunting.	14
Miscellaneous. . . .	2	Explosion . . . . . (other than at work)	7
		Miscellaneous. . . .	98
		Cause not reported .	16

As a result of above injuries 74 persons, five of them children, lost the sight of both eyes. Thirty of these had sympathetic opthalmia, which in most every case could have been prevented by prompt treatment following the injury. Three people (one a child) had to have both eyes removed. One eye in 117 cases became totally blind, following injury; 91 of these were adults; 33 were children. Thirty-six persons (seven of whom are children) sustained traumatic cataracts. Varying degrees of loss of sight in one or both eyes, for the remainder of the group, were caused by corneal scars, chemical burns or infections of one kind or another. Only one person in the group is reported as having placed himself under the care of the ophthalmologist immediately following a perforating injury and as a result of treatment there was no loss of sight in either eye. As a distinct contrast, one man waited until three weeks after the accident to see an ophthalmologist and by that time vision in both eyes was lost through sympathetic ophthalmia.

Among the more common causes of eye injuries in children were the following: Playing with dynamite caps, being struck in the eye with a ball, being struck by rubber bands and pins shot in home-made rubber guns. Others received injuries from wire accidently run into the eye, pocketknife, scissors, table forks, rocks, broken bottles, nails, cornstalks, pitchfork, hedgethorn, etc. One mother accidently cut an infant's cornea with her long finger nail. A playful dog hit a child in the eye with its paw; this later caused blindness.

Adults in the study sustained eye injuries under varying circumstances. A large number (33) lost one or both eyes following explosions, most of which were caused by dynamite. Twenty-two (22) persons were struck in the eye by a piece of kindling while chopping wood. Many others, at home, on the farm and in industry were injured by flying particles which entered the eye such as particles of metal, dust, splashing of chemicals, rocks, coal, etc. Others of these were injured when a whip or bridle rein struck the eye, when an oat beard, cornstalk, maize head, hedgethorns, etc., brushed against and sometimes perforated the eyeball. (A number of these accidents occurred to persons who had already lost an eye through previous injury.) Fourteen persons were injured while hunting. A few accidents occurred while persons were engaged in "horse play" such as fighting, etc. One man, attempting suicide, shot himself through the nerves of both eyes.

CHILDREN IN THE MEDICAL FILE

As previously stated, there are 340 children, ages--8 days to 16 years--inclusive, in the study. The number appears to be small in relation to the total group. In evaluating any findings, however, it must be remembered that until May 1939 only persons 16 years or older could apply for Aid to the Blind. The number referred might have been restricted further, because the Division's program for the prevention of blindness and restoration of sight has primarily been one of medical eye

care, generally excluding "straight refraction cases". Most counties have met this need themselves or through local resources. In a small number of instances, children with congenital cataract were referred to the Kansas Crippled Children's Commission, which by law is authorized to provide this type of eye care. A few children with this condition first came to the attention of this Division and are, therefore, included in the Diagnoses. Although causes of eye trouble, among children, are included in the general listing, a separate listing is also recorded. (See Appendix.) The majority of children, 120 (or 44%), had refractive errors. A large number of these were referred several years ago as a result of a misunderstanding of the scope of the medical care program. In most of these instances the counties were advised that there was no eye disease present and that recommendations were limited to glasses, which it was hoped the county would secure, since it was not possible to do so under the Division's program. The next most frequently appearing condition was strabismus, or "crossed eyes" which applied to 69 children or 23%. Twenty children had affections of the eyelids including blepharitis, conjunctivitis, hordeoli (sties), chalazion, etc. Eleven sustained eye injuries. (This figure must not be confused with that given under the discussion of eye injuries, since the latter includes adults whose injuries occurred while they were children.) Thirteen children had a keratitis (interstitial keratitis--9; phlyctenular keratitis--2; keratitis--2). Nine had congenital cataracts; six had optic atrophy; three had congenital glaucoma; two had ophthalmia neonatorum. Nine children, upon examination, were found to have "normal" eyes. Diagnoses for the remainder included: Choroiditis, retinitis, pigmentosa, glioma, microphthalmos, endophthalmos, amblyopia, etc.

On the basis of information given, it may be assumed that twenty-nine (29) children, or close to 10% of the group would find it difficult, or in some cases, impossible to get along in an ordinary public school because of serious eye conditions or low visual acuity. Unless a subsequent examination shows improvement, 17 of these children should have the benefit of Sight-Saving Equipment. Seven children in the group have 20/200 or less vision; some of these are now enrolled in the School for the Blind. One child in the study became blind, deaf and mute following a severe illness in infancy. There is no visual acuity given on five children, but diagnoses indicate that vision may be quite poor. Some are still in the process of treatment.

TREATMENT RECOMMENDED

It is encouraging to note that in 60% of the cases (2869 persons) there was recommendation for some type of eye care, whether medical or surgical or refraction only. As can be seen below (and in more detail in the classification in the appendix) this included care which would tend to restore, improve or maintain vision. A study of the individual cases shows that many persons had treatment recommended for conditions which had already become well advanced and should have had attention much earlier. Other persons, however, availed themselves of an eye examination

at a time when vision was still good and there was possibility for cure or alleviation of the disease. In some of the cases mentioned, effort had to be directed to keep the small amount of remaining vision intact. For a large percentage, restoration of sight through cataract extraction was believed possible. For 213 persons, general medical care in addition to eye care was recommended. This number may be actually larger than indicated since the detail given on reports (other than that pertaining directly to the eye) varies with the examiner. An additional 354 persons, not included in the above 60%, and over 7% of the total group, were advised to have some type of general medical care only. Taking the recommendations for medical care as a whole, we find that in 17% of these instances (103 cases) the recommendation was, "Find focus of infection causing eye trouble and treat". In 17% (103 cases) syphilis was suspected and therefore Wassermann and Spinal Fluid Tests were advised. In sixty-nine (69) other cases, (10%), the presence of syphilis was already known and treatment was advised. Some of the other frequently appearing recommendations are: Dental care; treatment for kidney conditions; diabetes; hypertensive conditions and "good nutrition and hygiene". (See appendix for details).

Treatment Recommended

Eye Care		2869
Cataract	982	
Refraction and Glasses (only)	876	
Glaucoma	204	
Trachoma	128	
Pterygium	111	
Ophthalmia Neonatorum	2	
Topographical Listing (excluding above)		
Lids	78	
Muscles	29	
Tear Duct	22	
Cornea	55	
Iris	37	
Ciliary Body	2	
Uvea	6	
Retina	26	
Choroid	15	
Optic Nerve	4	
Miscellaneous	25	
"Keep Patient Under Observation"	37	
Re-examination Later	97	
Enucleation	67	
General Medical Care (exclusive of eye care)		354

TREATMENT RECEIVED

The figures about to be given on the amount and type of treatment received by persons for whom medical care was recommended, relates only to treatment given by the Division. As was previously explained, treatment or care not made available under the program was referred to the county welfare department. In many cases, responsibility for carrying out recommendations were carried jointly by the Division and the County Welfare Department, the Division assuming cost of medical eye care; the county assuming the cost of the general medical care which was an integral part of the recommendation and very frequently as important to the welfare of the client's eyes as the eye care itself. Some 1227 persons have during the period of this study thus been called to the attention of the county welfare departments.

A total of 1291 persons received eye care which it was hoped would restore, improve or maintain vision. As might be expected on reviewing the diagnoses or causes of eye trouble, the highest percentage of treatment given was for cataracts, (540 or 42%), the largest proportion of them--senile cataracts. Two hundred and ninety-four persons (22%) were given refraction and glasses (exclusive of other medical eye care) during a period when such service was included in the program. Medical and surgical treatment for Glaucoma was given to 123 persons or almost 10% of the total for whom treatment was recommended. Medical and surgical treatment for Trachoma was given in almost 6% of the cases, or, to 72 persons. Fifty-seven persons were treated for Pterygium. (See table below for further detail on eye treatment given.) The study reveals that general medical care was given to 30 persons at a time when this was still included in the program. This included anti-luetic treatment (including fever therapy), x-ray and radium therapy, brain surgery, diabetic and tuberculin treatment and complete physical examinations to find the foci of infection.

Treatment Received
(Summary)

Eye Care		1291
Cataract	540	
Refraction and Glasses (excluding cataract lenses)	294	
Glaucoma	123	
Trachoma	72	
Pterygium	57	
Ophthalmia Neonatorum	2	

Topographical Listing (excluding above)

Lids	45	
Tear Duct	12	
Cornea	42	
Iris	25	
Ciliary Body	1	
Uvea	4	
Retina	11	
Choroid	8	
Optic Nerve	3	
Enucleation	22	
Miscellaneous	13	
General Medical Care		30

The study shows that 1540 persons, or 33% of the group had eye conditions which could not be improved by medical care. A notation made by an ophthalmologist in one case: "Senility, injury and neglect" can, if paraphrased to "Senility, injury or neglect" apply to a large number of persons in this group. (It could also apply to a surprising number of persons for whom some type of treatment was recommended.) A very small number, mostly children, were found on examination to have "normal" eyes and there were no recommendations for care.

RESULTS OF TREATMENT

As indicated previously, 1291 persons received treatment under the program during the period included for study. In evaluating the results of treatment, no attempt was made to distinguish between favorable and unfavorable results purely on the basis of visual acuity. Hence, the findings here disclosed do not state what percentage of those persons who were formerly classified as blind have, following treatment, been removed from this classification. Those results were listed as favorable which, following treatment, caused the individual served to have his vision restored, improved or maintained. This is a very broad term and includes even a small number of persons who following treatment were given greater comfort, although actual improvement in vision was not possible. The study reveals that 88% of those treated benefited in some way. Statistics kept in the office of the State Supervising Ophthalmologist show that during this period 62% of the persons who received treatment under the "Restoration of Sight" classification, (namely, had vision low enough to be classed as blind) had following this service, vision restored at least sufficiently to remove them from the category of blindness. The same source shows that 98% of the individuals whose treatment was classified under "Prevention of Blindness" (because their vision at the time of application for eye care was better than the definition of blindness implies) were able to have improved vision or maintain vision of varying degrees following treatment.

A broader classification was used for this study for the following reasons: (1) From a practical standpoint, it seemed pertinent to learn the percentage of persons who had benefited in any way by the eye care made available to them, and (2) Because of the meaning which any degree of vision restored, improved or maintained can have to the individual served. It is, of course, obvious that persons who have had their vision restored, improved or maintained will tend to be able to meet their needs within the limits of their capacities more adequately. However, comfort, even when the only end result was likewise listed as "favorable", since it will be agreed that an individual when relieved of a troublesome condition over which he has no control, can become a happier and better adjusted member of his group.

Results were not recorded for ten persons in the group, seven of whom did not have treatment completed. Reports on the remaining three were incomplete.

The total cost of the medical and surgical eye care which was given to the 1291 persons during the period of the study was $83,856.00. The average cost per person was $87.00.

SUMMARY AND RECOMMENDATIONS

A survey of the 4769 reports of eye examinations which have come to the attention of the Division of Services for the Blind, gives testimony of the value of a program of medical eye care to the state. For the past five years, as the program developed, continuous effort has been made to provide the best standard of service to persons whose eyesight was threatened by disease or for whom there was hope of restoring vision already lost. The survey shows how necessary such effort has been for residents of Kansas who have been unable to meet this expense themselves and how important has been the cooperation worked out between the medical profession, the various county departments of Social Welfare, and the Division of Services for the Blind. As previously indicated, recommendation for eye care was made in 60% of all cases examined. General medical care only, without which in many cases eyesight would be further threatened, was advised in over 7% of the total cases. It is known that many individuals were not aware that they might be benefited by further eye care until this was shown by a careful ophthalmological examination. Unfortunately, many persons came to the attention of the ophthalmologist when much useful vision had already been destroyed. This was particularly true of clients with trachoma. Histories show that most of these people; many of them elderly, began to have sore eyes while they were of grade school age. Apparently little thought was given to corrective treatment. The child was taken out of school, the family "put up with" the disease while it was acute, and paid no attention to it when this stage subsided. (We must remember, however, that much of this occurred 40, 50 and 60 years ago when resources for any kind of medical care were limited and persons did not consult a physician as they do now.) By the time a number of persons reached the ophthalmologist, scarring of the cornea had taken place, vision had been reduced and in many cases plastic lid surgery and other treatment was necessary to keep the patient comfortable and prevent further irritation. The hopeful aspect of timely treatment is seen in other referrals, four of whom were members of one family. These persons had good vision when they reported for eye care. They received treatment, their trachoma subsided and if these persons will seek eye care when there is a recurrence, they may have good vision for life.

A somewhat similar picture is seen in the cases of many glaucoma patients, a large number of whom did not see an ophthalmologist before much useful vision was destroyed. Glaucoma, unlike trachoma, however, can be present without any very obvious symptoms. Many persons, nevertheless, do have numerous symptoms which, if they understood their importance, would lead them to the ophthalmologist for continued supervision. Lack of understanding concerning the nature of this disease and discouragement sometimes felt when treatment does not appear to bring results, are definite factors in what appears to be "neglect" of the condition. Glaucoma is responsible for more than 8% of Kansas' blindness. Optic atrophy, most of which was caused by syphilis, was also found in more than 8% of the cases. It is apparent that syphilitic treatment in the early

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stages could have prevented much of this difficulty. Diabetes is another disease which attacks various parts of the eye and its effect frequently is seen in this study. Control of the diabetic condition obviously prevents eye trouble. The foregoing are examples, the principles of which may well be applied to the other causes of blindness and impaired vision on the list.

The survey shows that 88% of the persons who were treated under the program were benefited thereby in some way. Vision was restored to many persons who had cataract surgery. How long they were able to maintain the favorable results secured is not known. Since these persons are largely elderly and subject to ailments of old age, it is not surprising that a number lost some of the recovered vision. A good understanding of the importance of returning again to the ophthalmologist when unfavorable symptoms appear should be firmly impressed on persons who have had eye treatment.

From the foregoing, the need for educating the public as to the causes of blindness and for encouraging continued awareness of the possibility for conserving eyesight among those who come in contact with people such as case workers, teachers, nurses, etc., will be appreciated.

It has often been said that much constructive planning could be effected if more were known about the clients who decline to accept treatment even though they know that it offers the possibility of improvement of their condition. As has been indicated previously, 745 persons, or 36% of those who were eligible to receive medical eye care under our program, did not do so. Recording in the files on this subject was very limited. Sketchy information was given on 147 cases, but perhaps it will throw light on the subject. Forty-nine persons refused treatment. Twelve of these desired treatment at the time of examination and then later changed their minds. Reasons for refusal in 46 cases are unknown. The seven remaining did not wish to accept eye care because of fear of surgery, lack of confidence in doctors, fear of losing their small amount of remaining sight. Eye care was later contra-indicated for fourteen other persons because of advanced age and poor health. Eight persons moved; one person was committed to a mental hospital. Six people, examined during the early days of the program, were ineligible to receive treatment. Two did not have treatment because of temporary shortage of funds. Three had good vision in the remaining eye; seven were taken off Public Assistance rolls and therefore became ineligible. Five had their treatment but expense was met through other sources. Fifty-two persons in the group have since died.

The facts brought out by the study seem to indicate the advisability for continuing certain activities which were undertaken by the Division during the past five years in the hope of improving the value of the program of medical eye care for those who are to benefit by it. Likewise, there were implications for more wide-spread and generalized prevention of blindness efforts. The importance of close cooperation between the county welfare departments and the Division of Services for the Blind is easily appreciated. The individual case worker can be a valuable ally, both to the doctor and the client, not only because she

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is familiar with the necessary procedures which must be followed to make medical eye care available to her client, but also because of her relationship with the client and the help she can be to him at a time when he may be facing a difficult experience. (It would be desirable if the case worker could be with the client when he has his eyes examined so that she might know what interpretation the ophthalmologist gives the patient and can follow through at that point by letting the client discuss it with her when it is fresh in his mind and he is apt to be disturbed. If this cannot be done, it would be helpful if the case worker could make a home visit as soon after receiving the ophthalmological report as possible.) It is therefore advisable for the Division to continue to help the worker to understand the nature of at least the more frequently appearing eye conditions and the implications for follow-up care. In addition to the pamphlets distributed on this subject, it would be helpful if periodic lectures by ophthalmologists, followed by a discussion of some of the social implications by someone in the field, could be arranged. Opportunity could be given for questions and discussions. (In the early years of the program such lectures were conducted in various parts of the state.)

The correspondence between the county welfare departments and the Division can be of such a nature that it will help the individual case worker in her understanding of the client's eye condition and what can be expected for him. This can be done by including some interpretation of the client's condition when a copy of the ophthalmological report is sent. (This is not meant however to take the place of first-hand discussion with the ophthalmologist, which is always preferred.) When treatment is completed, the Division should continue to advise the county as fully as possible of the results, probable need for further eye or general medical care and in addition, any implications which the change in visual acuity, better or worse, can have for the client so that she may help him plan constructively for the future.

Since, in the past, there has been some confusion as to whose responsibility (the county's or the Division's) it is to arrange for a re-examination when this is advised, it might be well for the Division to keep a file of such persons and notify the counties as the time draws near. The counties may feel free to request a re-examination prior to that time if symptoms appear.

The study indicated that there were some twenty-nine children with serious eye conditions or greatly impaired vision. Special follow-up on these cases should be undertaken to make certain that everything has been done for them from the standpoint of eye care and that the necessary provisions for schooling have been made.

More generalized efforts to prevent blindness and conserve vision should be continued. Among they are: (1) A more wide-spread program for acquainting the public with the importance of conserving eyesight and seeking timely medical eye care when symptoms present themselves. (2) Effort to encourage persons whose work enables them to come in contact with adults or children to be aware of symptoms which may indicate eye trouble. (An eye condition in its early stages or a condition of even less serious nature, may not be as "dramatic" as a situation in which

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complete loss of sight is threatened but it has, by far, the greater economic and general "human" value to the person involved.

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APPENDIX A

1. Total Number Examined 4769

Number of Examinations by Year:

1937 608 or 12.9%

1938 860 or 18 %

1939 760 or 15.9%

1940 1246 or 26.1%

1941 763 or 16 %

1942 454 or 9.5%

(to 4-15-43) 1943 78 or 1.6%

2. Sex: Male 2690 or 56.4%

Female 2069 or 43.3%

(Sex of 10 persons--.3%--not reported)

3. Race: White 4295 or 90 %

Black 462 or 9.7%

Not reported 12 or .3%

4. Age When Examined:

1 to 5 yrs. 42 or .9%

6 to 16 yrs. 298 or 6.2%

17 to 25 yrs. 143 or 3 %

26 to 45 yrs. 462 or 9.7%

46 to 65 yrs. 1503 or 31.5%

66 and over 2315 or 48.5%

(Youngest 8 days -- Oldest 102 years)

(Age of 6 persons--.2%--not reported)

5. Visual Acuity:

Eligible for Aid to the Blind 2761 or 57.9%

Ineligible for Aid to the Blind 2008 or 42.1%

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APPENDIX A (con't)

6. Treatment Recommended to Restore, Improve or Maintain Vision:

Eye Care: ____ 2869 or 60%

354 or 7+%

General Medical Care Only ____

Or In Connection With Eye Care ____ 213

No Treatment Advised: ____ 1546 or 33%

7. Treatment Received:

1291 persons received treatment under the program (this is 60% of the group eligible to receive treatment).

745 persons were eligible to receive treatment but did not avail themselves of it.

1227 persons were referred to County Welfare Departments for provision of glasses, general medical care, etc.

8. Results of Treatment:

1147 persons had favorable results.

134 persons had unfavorable results.

7 treatment not yet completed.

3 result not recorded.

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APPENDIX B

DIAGNOSES
(4769)

Cataract		1555
Senile Cataract	1200	
Secondary Cataract	29	
Incipient Cataract	180	
Traumatic Cataract	65	
Congenital Cataract	65	
Dislocated Lens	16	
Refractive Error (only)		590
Optic Atrophy		399
Glaucoma		385
Trachoma		257
Pterygium		236
Strabismus		73
Ophthalmia Neonatorum		21
Congenital Anomolies		47
Neoplasms		10

Topographical Listing (excluding above)

Lids		60
Conjunctivitis	32	
Blepharitis	7	
Folliculosis	1	
Hordeolum	1	
Chalazion	3	
Misplaced Cilia	2	
Entropion	4	
Ectropion (and thickened conjunctiva)	1	
Epithelioma	2	
Growth on inner surface of upper lid	1	
Argyrosis	1	
Ptosis	5	
Tear Duct		17
Tear Duct Infection (dacryocystitis)	16	
Epiphora	1	
Cornea		248
Leucoma	131	
Corneal Ulcer	55	
Interstitial Keratitis	28	
Keratitis	31	
Conical Cornea	1	
Traumatic Wound	1	
Epitheliel Dystrophy of Cornea	1	

APPENDIX B (con't)

Sclera		2
Scleritis	2	
Iris		49
Iritis and Iridocyclitis	45	
Iris Bombe'	1	
Prolapse of Iris	1	
Extrusion of Iris	1	
Atrophy of Iris.	1	
Ciliary Body (only)		3
Cyclitis	3	
Retina		271
Retinitis	106	
Retinitis Pigmentosa.	53	
Degeneration of Retina	29	
Retinal Detachment	22	
Retinal Hemorrhage	24	
Neuro-retinitis.	11	
Retinal Arteriosclerosis	10	
Retinal Atrophy.	8	
Retinal Hypertension.	6	
Thrombosis of Central Retinal Artery	2	
Macula		14
Macular Degeneration.	7	
Macular Retinitis	3	
Macular Chorio-retinitis	1	
Hole in Macula	2	
Lack of Development	1	
Choroid		152
Choroiditis	83	
Chorio-retinitis	69	
Uvea		20
Uveitis	20	
Vitreous		3
Degenerative Changes in Vitreous	3	
Optic Disc		2
Papilitis	2	

APPENDIX B (con't)

Optic Nerve (excluding optic atrophy listed above)		12*
Optic Neuritis	5	
Retro-bulbar Neuritis	7	
Optic Tract		1
Homonomous Hemianopsia	1	
Brain Lesion		5
Cerebral Hemorrhage	1	
Cerebral Arteriosclerosis	1	
Lesion of Central Nervous System	2	
Hemoplegia	1	
Neoplasma		10
Brain Tumor	1	
Pituitary Tumor	1	
Intra-ocular Tumor (not specified)	3	
Tumor of the Choroid	1	
Glioma	1	
Melanoma	1	
Carcinoma	1	
Tumor on Eye	1	
Congenital Anomalies		47
Developmental	22	
Aniridia	4	
Microphthalmos	4	
Anophthalmos	2	
Albinsm	1	
"Blind at Birth"	1	
Miscellaneous		280

(In this group are included diagnoses "unknown," persons with "normal" eyes who were erroneously referred, persons whose blindness or defective sight was a coincidence of old age, several whose loss of sight was thought to be due to "hysteria," and a variety of conditions which appeared infrequently, such as toxemia, endophthalmitis, staphyloma, etc.)

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* 411 including Optic Atrophy

APPENDIX B (con't)

GENERAL PHYSICAL CONDITIONS RELATED TO EYE CONDITION

Syphilis (Congenital and Acquired)		(82)
Diabetes		(59)
Focal Infection		(27)
Infection not specified	12	
Tonsilitis Chronic	1	
Carious Teeth	13	
Pyorrhoa	1	
Nephritities		(10)
Endocrine Disturbance (Includes goiter, pituitary gland, etc.)		(10)
Hypertensives		(8)
Tuberculosis		(5)
Influenza		(3)
Typhoid Fever		(1)
Measles		(6)
Malaria		(3)
Scarlet Fever		(4)
Fever		(1)
Erysipelas		(3)
Meningitis		(8)
Cerebral Hemorrhage		(3)
Small Pox		(1)
Cholera Infantum		(1)
Neuro-myelitis		(1)
Rheumatism		(2)
Arthritis		(1)
Pernicious Anemia		(1)
Sinusitis		(2)
Nervous Spasm		(1)
Chorea		(1)
Paralytic Spasticity		(1)
Congenital Deficiency Disease		(1)
Gonorrhea		(1)
Vitamin Deficiency		(2)
Poor Nutrition		(3)
Senility		(9)
Brain Tumor		(4)
Epithelioma		(1)
Skin Lesion		(2)
Caricinoma of Ethmoid Sinus		(1)

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APPENDIX B (con't)

External Causes-		(8)
Excessive use of alcohol	3	
Methyl Alcohol Poisoning	2	
Tobacco Amblyopia	1	
"Toxic Poisoning	1	
Drug Poisoning	1	
Vegetable Poisoning		(3)
Ivy Poisoning	2	
Weed Poisoning	1	
Auto Accident		(1)

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APPENDIX C

EYE TREATMENT RECOMMENDED

(2869)

Cataract		982
Cataract Extraction	812	
Cataract Extraction Later	85	
Discission	49	
Capsulotomy	2	
Local Medication for Incipient Cataract	34	
Refraction and Glasses (only)		876
Glaucoma		204
Trachoma		128
Pterygium		111
Ophthalmia Neonatorum		2
Lids		78
Lid Surgery (unspecified)	7	
Entropion Operation	4	
Ectropion Operation	1	
Ptosis Operation	3	
Lid Treatment (unspecified)	10	
Conjunctivitis	42	
Blepharitis	2	
Remove Chalazion	3	
Remove Growth on Lid	2	
Epilation of Lashes	2	
Treatment of Argyrosis	1	
Muscles		29
Muscle Operation	11	
Muscle Training	9	
Not Specified	9	
Tear Duct		22
Treat Ear Duct Infection	20	
Remove Tear Sac	2	
Cornea		55
Corneal Ulcer	22	
Keratitis	17	
Interstitial Keratitis	9	
Corneal Transplant	5	
Treatment for Corneal Scars	2	

APPENDIX C (con't)

Iris		37
Iridectomy	20	
Iridocyclitis	9	
Iritis	8	
Ciliary Body		2
Treatment for Cyclitis	2	
Uvea		6
Uveitis	6	
Retina		26
Retinitis	16	
Neuro-retinitis	3	
Operation for Retinal Detachment	5	
Treatment for Retinal Hemorrhage	2	
Choroid		15
Chorio-retinitis	9	
Chororiditis	6	
Optic Nerve		4
Optic Atrophy	4	
Miscellaneous		25
Treatment for Retro-bulbar Neuritis	1	
Treatment for Hyalitis	1	
Treatment for Scleritis	1	
Treatment for Vitreous Opacities	2	
Treatment for Sympathetic Ophthalmia	1	
Emergency Treatment for Injured Eye	5	
Re-sect Cyst	1	
Preventive Treatment for Progressive Myopia	1	
"Continue Medication"	3	
X-ray for Epithelioma	1	
Radium on Skin Cancer	1	
X-ray of Orbit	1	
Radium Treatment	2	
Artificial Eye	3	
Recommendation Not Given	1	
"Keep Patient Under Observation"		37
Re-examination Later		97
Enucleation		67

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APPENDIX C (con't)

GENERAL MEDICAL CARE ADVISED

Find Focal Infection and Treat	103
General physical examination, plus laboratory tests, were advised. In three cases hospitalization for this was recommended.	
"General Medical Care"	16
Wassermann Test	93
Spinal Fluid Test	10
Syphilitic Treatment	65
Fever Therapy	4
Dental Care	56
Tonsillectomy	5
Urinalysis	5
Blood Sugar (to determine whether diabetic)	5
Diabetic Treatment	43
Treatment for Bright's Disease	1
Treatment for Kidneys	1
Renal-cardial Care	1
Cardiac Examination	1
Check Vascular Condition	1
Treatment for Vascular Disease	1
Treatment for High Blood Pressure	5
Treatment for Arterio-sclerosis	7
Systemic Treatment	5
Treatment for Sinus Condition	4
Treatment for Arthritis	1
Thyroid Surgery	1
Brain Surgery	1
Cancer Treatment	1
X-ray Therapy	2
X-ray of Skull	2
X-ray of Pituitary Region	1
Check Pituitary Gland	1
Refer to Neurologist	4
Good General Physical Care (including good diet)	24
High Vitamin Diet	15
Potassium Iodide	1
Better Hygiene	3

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APPENDIX D

TREATMENT RECEIVED

(1291)

Cataract		540
Cataract Extraction	507	
Discission	21	
Medication for Incipient Cataract	10	
Capsulotomy	1	
Removal of Luxated Lens	1	
Refraction and Glasses (excluding cataract lenses)		294
Glaucoma (medical and surgical treatment)		123
Trachoma (medical and surgical treatment)		72
Pterygium		57
Ophthalmia Neonatorum		2
Topographical Listing (excluding above)		
Lids		45
Medical Treatment	30	
Surgical Treatment (Ptosis, Entropion, Plastic Surgery, etc.)	15	
Tear Duct		12
Medical Treatment	10	
Surgical Treatment	2	
Cornea		42
Keratitis	15	
Interstitial Keratitis	8	
Corneal Scar	2	
Corneal Ulcer	15	
Corneal Transplant	1	
Treatment following Injury	1	
Iris		25
Iritis and Iridocyclitis	15	
Iridectomy	10	
Ciliary Body		1
Cyclitis	1	
Uvea		4
Uveitis	4	

APPENDIX D (con't)

Retina		11
Retinitis	8	
Retinal Detachment	1	
Neuro-retinitis	1	
Retinal Hemorrhage	1	
Choroid		8
Choroiditis	3	
Chorio-retinitis	5	
Optic Nerve		3
Retro-bulbar Neuritis	1	
Optic Atrophy	2	
Enucleation		22
Miscellaneous		30
Observation, periodically	20	
Treatment for Chemical Burn	1	
Emergency Treatment following Injury	3	
Adhesions, treatment for	1	
Artificial Eye (other than those provided following enucleation)	2	
Intra-ocular Hemorrhage	1	
Hyalitis	1	
Scleritis	1	
General Medical Care (exclusive of eye care)		30
Anti-luetic Treatment (including fever therapy--2)	14	
Consultation and Spinal Puncture	1	
General physical examination and study to find focus of infection	5	
Tuberculin Treatment	1	
Diabetic Treatment	1	
Treatment for Arteriosclerosis	1	
Radium Therapy for Skin Cancer	1	
X-ray for Epithelioma	1	
X-ray for Tumor	1	
Surgery for Removal of Brain Tumor	1	
Surgery for Removal of Melanoma	1	
Brain Surgery	1	
Observation for Intra-cranial Lesion	1	

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APPENDIX E

CHILDREN

(340)
(Ages 8 days to 16 Years)

Diagnoses (Topographical Listing)

Eyeball in General			123
Congenital Glaucoma (1 child has also optic neuritis)		3	
Refractive Error		120	
Hyperopia and Hyperopic Astigmatism (2 children also have a nystagmus 1 child also has blepharitis)	80		
Myopia and Myopic Astigmatism	18		
Error of Refraction (not specified)	22		
Lids			
Ophthalmia Neonatorum		15	
Blepharitis	3		
Chronic Conjunctivitis	1		
Follicular Conjunctivitis	7		
Vernal Conjunctivitis	4		
Chalazion	1		
Hordeoli	1		
Trachoma	1		
Muscles	2		
Tear Duct		69	
		2	
Dacryocystitis	2		
Cornea		17	
Keratitis			
Interstitial Keratitis	2		
(1 child also had suppurative dacryocystitis)	9		
Phlyctenular Keratitis	2		
Corneal Ulcer	3		
Corneal Scar	1		
Ciliary Body		2	
Ciliary Spasm	2		
Lens			10
Congenital Cataract (8 - bilateral; 1 - unilateral)		9	
Dislocation of Lens		1	

APPENDIX E (con't)

Uvea		1
Chronic Uveitis (Optic nerve affected)	1	
Retina		6
Retinitis Pigmentosa	2	
Retinal Degeneration	2	
Retinal Detachment	1	
Retinal Hemorrhage at Birth	1	
Macula		2
Undeveloped Macular Region	1	
Tear in Macula	1	
Choroid		4
Choroiditis (disseminated)	1	
Chorio-retinitis	3	
Optic Atrophy		6
(1 child has Retinal Degeneration also) (1 child has also "Astroblastoma of Fronto-parietal Lobe")		
Orbit		1
Orbital Cellulitis	1	
Miscellaneous		
Post-orbital Abscess at Birth (unilateral)	1	
Glioma	1	
Lipo-dermoid Cyst	1	
Microphthalmos (unilateral)	1	
Endophthalmos	1	
"Optic Disc shows Modulated Nerve fibers" (unilateral)	1	
Amblyopia	1	
Both Eyes "Normal"	5	
Unknown	9	
Temporary Spells of Blindness due to Acute Ethmoid Sinusitis	1	
Injuries - (Diagnoses not included above)		11
1. Cornea Lacerated (unilateral)		1
2. Leucoma Adherens; Acute Cyclitis		1

APPENDIX E (con't)

3. Eye Removed following Infection	1
4. Perforating Injuries	3
1 eye blind	2
1 eye removed	1
5. Traumatic Cataract	4
6. Occlusion and Seclusion of Pupil (unilateral)	1
7. Iridocyclitis (unilateral)	1
8. Hyphemia (unilateral)	1
9. Child was struck on head and vision has dropped to 20/200. Eye examination negative	1
10. Child fell on head and is having symptoms (Ophthalmological examination negative)	1
11. Corneal Scar on one eye; other eye removed	1

General Physical Conditions Possibly Related to Eye Trouble

Congenital Syphilis	10
"Malnutrition"	7
Meningitis	3
Migraine	2
Chorea	1
Scarlet Fever	1
Measles	1
Diseased Tonsils	1

APPENDIX F

CLIENTS ELIGIBLE FOR TREATMENT BUT DID NOT RECEIVE TREATMENT

(Information recorded on 147 cases)

Refused Treatment		
Reason Unknown	30	
Agreed at first, then later refused.	12	
Religious Belief	1	
Fear of Surgery.	3	
Client had been ill; did not want to submit to further "suffering"	1	
Fear of losing what little sight remains.	1	
Lack of confidence in doctors	1	
Expense Met Through Private Sources		5
Lions' Club	1	
Old Age or Poor General Physical Condition		14
Deceased		52
Moved		8
Committed to Mental Hospital		1
Cataract Surgery Not Approved Because of Good Vision in Other Eye		3
Insufficient Funds for Medical Eye Care		2
Client Ineligible to Receive Treatment Under our Program at the Time		6
Client no Longer Eligible for Public Assistance and Therefore Not Eligible for Medical Eye Care		7

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A STUDY OF THE PROGRAM OF MEDICAL EYE CARE IN KANSAS.

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